HEATHERLANDS SUBDIVISION (PWS 5070023)
SOURCE WATER ASSESSMENT FINAL REPORT

November 3, 2000

State of Idaho
Department of Environmental Quality

Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. This assessment is based on a land use inventory of the designated assessment area and sensitivity factors associated with the wells and aquifer characteristics.

This report, *Source Water Assessment for the Heatherlands Subdivision, Idaho*, describes the public drinking water system, the boundaries of the zones of water contribution, and the associated potential contaminant sources located within these boundaries. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

The Heatherlands Subdivision drinking water system consists of two wells. Though the wells had high ratings in hydrologic sensitivity and moderate ratings for system construction, a lack of potential contaminant sources and the quality of the water delivered throughout the years kept the total well ratings at moderate susceptibility to volatile organic contamination, synthetic organic contamination, inorganic contamination, and microbial contamination. Water chemistry tests have never detected volatile organic contaminants, synthetic organic contaminants, or microbial contaminants in the well water. The inorganic contaminants cadmium, barium, fluoride, and nitrate have been detected, but at levels below the Maximum Contaminant Levels for drinking water.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

For the Heatherlands Subdivision, source water protection activities should focus on sustaining and implementing practices aimed at wellhead protection. Issues raised in the recent 1999 Drinking Water Supply Report should be addressed. Keeping the wellhead and surface seal up to standards will reduce the susceptibility ratings. Other practices aimed at reducing the movement of contaminants within the designated source water areas should be investigated. Any accidental spills in the Big Wood River or from Highway 75 should be closely monitored. Disinfection practices could be implemented if microbial contamination becomes a concern. Most of the designated areas are outside the direct jurisdiction of the Heatherlands Subdivision. Partnerships with state and local agencies and industry groups should be established and are critical to success. Due to the time involved with the movement of groundwater, source water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term.

A community with a fully developed source water protection program will incorporate many strategies. For assistance in developing protection strategies please contact the Twin Falls Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR HEATHERLANDS SUBDIVISION, IDAHO

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the ranking of this source means.** A map showing the delineated source water assessment area and the inventory of significant potential sources of contamination identified within that area are attached. The list of significant potential contaminant source categories and their rankings used to develop the assessment also is attached.

Background

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area and sensitivity factors associated with the wells and aquifer characteristics.

Level of Accuracy and Purpose of the Assessment

Since there are over 2,900 public water sources in Idaho, there is limited time and resources to accomplish the assessments. All assessments must be completed by May of 2003. An in-depth, site-specific investigation of each significant potential source of contamination is not possible. **Therefore, this assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

The ultimate goal of the assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. The Idaho Department of Environmental Quality (IDEQ) recognizes that pollution prevention activities generally require less time and money to implement than treatment of a public water supply system once it has been contaminated. IDEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a source water protection program should be determined by the local community based on its own needs and limitations. Wellhead or source water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Section 2. Conducting the Assessment

General Description of the Source Water Quality

The Heatherlands Subdivision wells make up a community system serving approximately 200 people through 85 connections. The subdivision is located in Blaine County, about 1 mile south of the confluence of the East Fork Wood River with the Big Wood River (Figure 1). The public drinking water system for the Heatherlands Subdivision is comprised of two wells.

There are no current significant water chemistry problems in the drinking water. No inorganic contaminants (IOCs) (i.e. nitrate, cadmium, barium) have been recorded above the Maximum Contaminant Level (MCL). Volatile organic contaminants (VOCs), synthetic organic contaminants (SOCs), and microbial contamiants have never been detected in any of the drinking water. Though no significant IOC, VOC, SOC, or microbial water chemistry problems currently exist, the possibility of contamination from nearby sources remains.

Defining the Zones of Contribution--Delineation

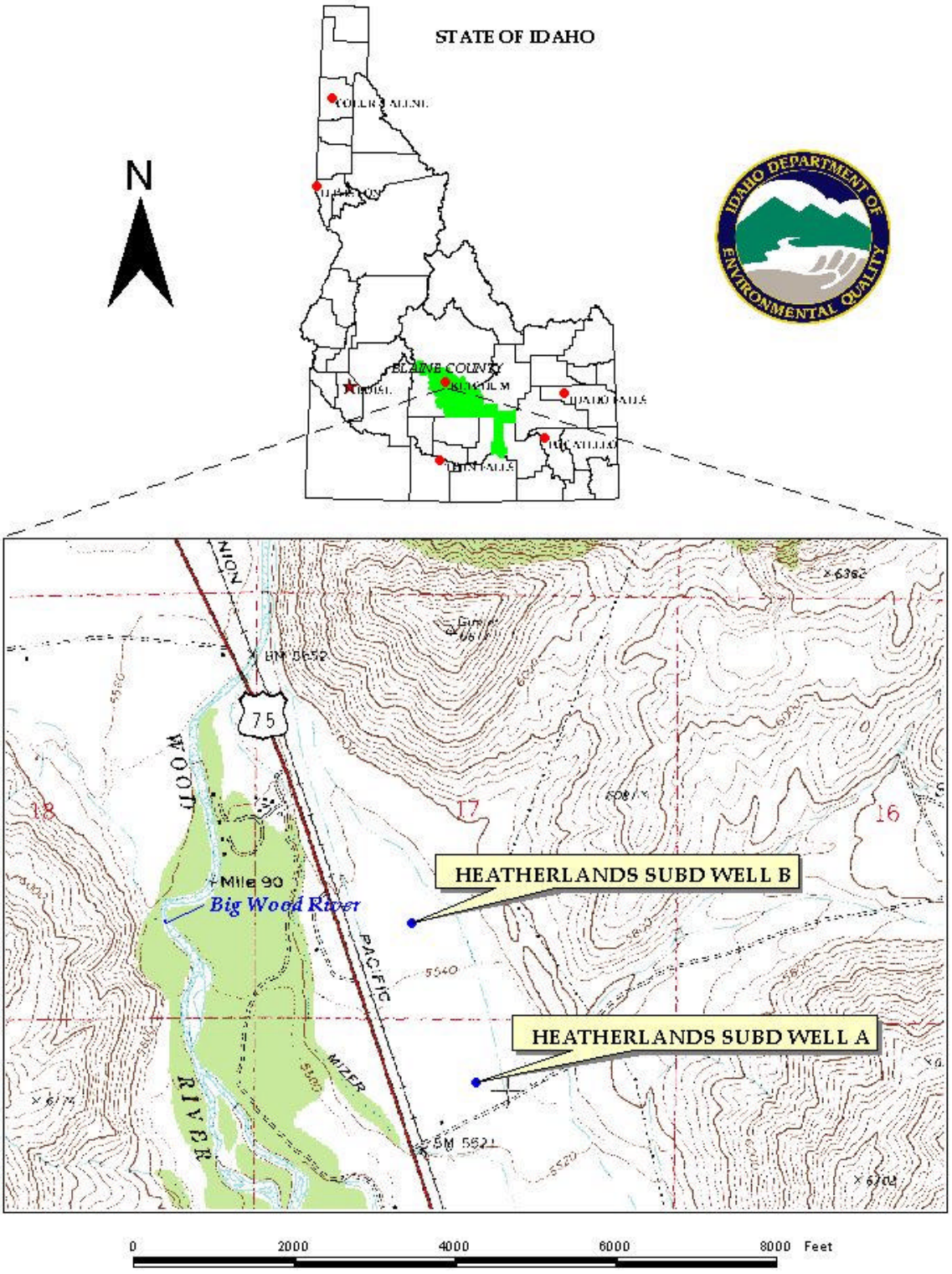
The delineation process establishes the physical area around a well that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time of travel zones (zones indicating the number of years necessary for a particle of water to reach a well) for water in the aquifer. IDEQ used a refined computer model approved by the EPA in determining the 3-year (Zone 1B), 6-year (Zone 2), and 10-year (Zone 3) time of travel for water associated with the Big Wood River aquifer in the vicinity of the Heatherlands Subdivision. The computer model used site specific data, assimilated by IDEQ from a variety of sources including the Heatherlands Subdivision Well A well log, local area well logs, and various reports (Castelin and Winner, 1975; Frenzel, 1989). The delineation can best be described as bounding the Big Wood River and East Fork Wood River valley floors five (5) miles to the north and five (5) miles to the northeast. The actual data used by IDEQ in determining the source water assessment delineation area is available upon request.

Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act and has a sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of groundwater contamination. The locations of potential sources of contamination within the delineation areas were obtained by field surveys conducted by IDEQ and from available databases.

The dominant land use outside the Heatherlands Subdivision area is undeveloped land, agricultural land, and residential land uses. Land use within the immediate area of the wellhead consists of residential uses.

FIGURE 1 - Geographic Location of Heatherlands Subd



It is important to understand that a release may never occur from a potential source of contamination provided they are using best management practices. Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination. These involve educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply well.

Contaminant Source Inventory Process

A two-phased contaminant inventory of the study area was conducted during the spring and summer of 2000. The first phase involved identifying and documenting potential contaminant sources within the Heatherlands Subdivision Source Water Assessment Area through the use of computer databases and Geographic Information System (GIS) maps developed by IDEQ. The second or enhanced phase of the contaminant inventory involved contacting the operator to validate the sources identified in phase one and to add any additional potential sources in the area. This task was undertaken with the assistance of Chuck Williamson of Heatherlands Subdivision.

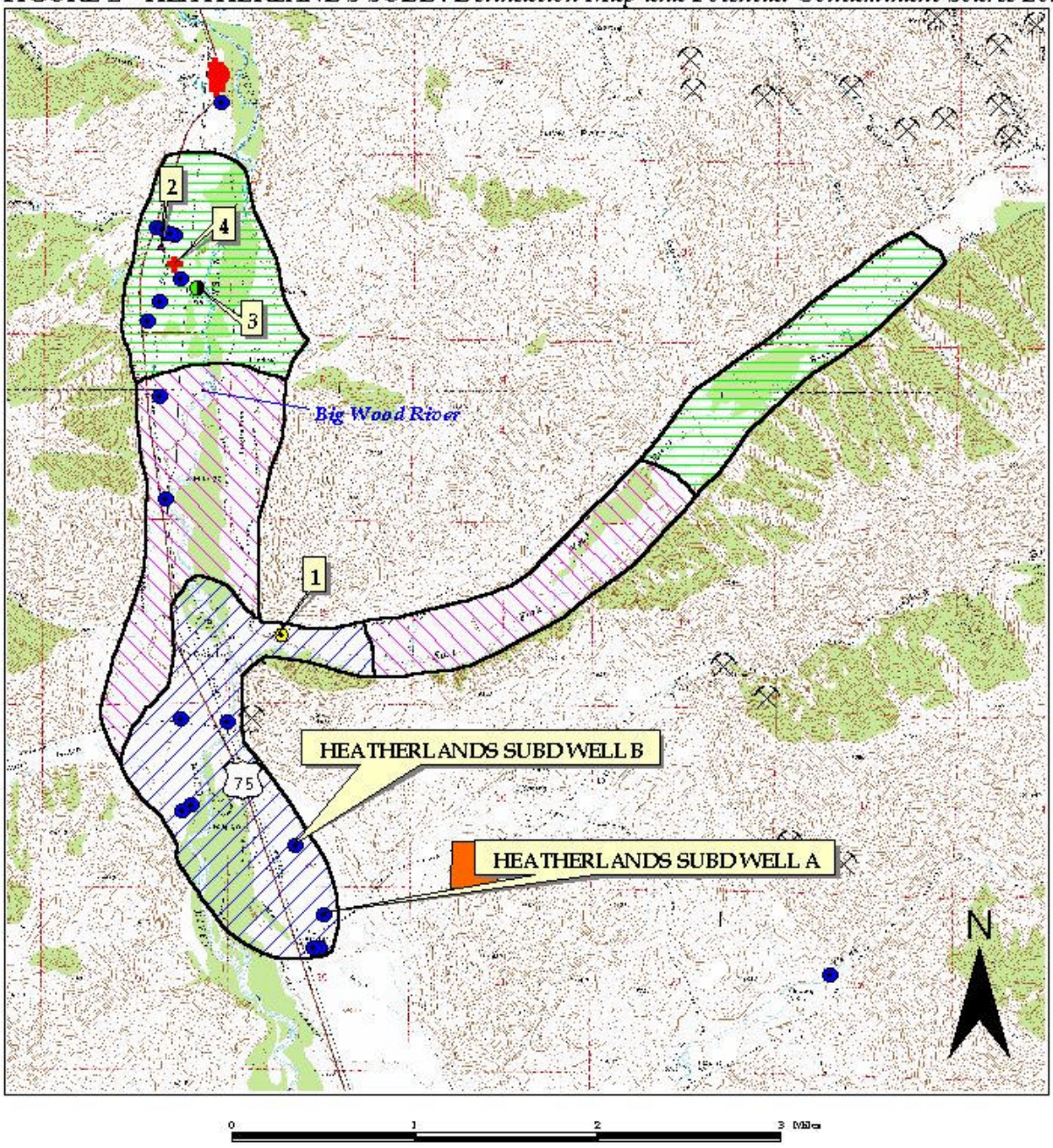
The Heatherlands Subdivision well has a total of three potential contaminant sites and three additional potential contaminant sources within the delineated source water areas (see Table 1). They consist of a cleaning business, a business with an underground storage tank (UST), and a facility regulated by a National Pollutant Discharge Elimination System (NPDES) permit. Additionally, the Big Wood River and Highway 75 could be potential sources of contamination from an accidental spill. Figure 2 shows the locations of these various potential contaminant sites relative to the wellhead. Since the groundwater aquifer is hydraulically connected to the surface water system (Luttrell and Brockway, 1984), the Big Wood River will be considered a potential source of contamination. Though not within the delineated source water area, the system should be mindful of the Ohio Gulch Transfer Station, which could be a potential source of contaminants to Well A depending on the amount of water that drains the gulch. However, the probability of contamination from the landfill is low; Ohio Gulch Landfill is closed and meets USEPA and state closure requirements.

Table 1. Heatherlands Subdivision, Potential Contaminant Inventory

SITE #	Source Description	TOT Zone (years)	Source of Information	Potential Contaminants
1	Cleaner	0-3	Database Search	VOC
	Big Wood River	0-10	Database Search	IOC, VOC, SOC, Microbes
	Highway 75	0-10	Database Search	IOC, VOC, SOC, Microbes
2	UST-open	6-10	Database Search	VOC, SOC
3	NPDES	6-10	Database Search	IOC
4	Transfer Station	6-10	Enhanced Inventory	IOC, VOC, SOC

IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

FIGURE 2 - HEATHERLANDS SUBD: Delineation Map and Potential Contaminant Source Location



LEGEND (see glossary)

Time of Travel Zones
- 1B (3 Yr TOT)
- 2 (6 Yr TOT)
- 3 (10 Yr TOT)
- Wellhead
- Enhanced Inventory
- Toxic Release Inventory
- CERCLIS Site
- RCRIS Site
- Business Mailing List
- Dairy
- LU ST Site
- Closed uST Site
- Open uST Site
- NPDES Site
- Mine
- AST
- Recharge Point
- SARA Title III Site (EPCRA)
- Injection Well
- Group1 Site
- Cyanide Site
- Landfill
- Wastewater Land App.Site

IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY

PWS 5070023
WELL A & WELL B

Section 3. Susceptibility Analyses

Significant potential sources of contamination were ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity of the well, land use characteristics, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each well is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. The following summaries describe the rationale for the susceptibility ranking.

Hydrologic Sensitivity

Hydrologic sensitivity was rated high for the Heatherlands Subdivision drinking water system (see Table 2). Multiple factors increase the likelihood of movement of contaminants from the surface to the aquifer and lead to this high score. The soils within the delineation are classified as moderate to well drained. The Well A log shows that the vadose zone (zone from land surface to the water table) is made of gravel and clay which could reduce the downward movement of contaminants, but that there are not at least 50 cumulative feet of low permeability layers.

Well Construction

Well construction directly affects the ability of the wells to protect the aquifer from contaminants. The Heatherlands Subdivision drinking water system consists of two wells that extract groundwater for domestic uses. The system construction score was moderate for both wells (Table 2). A Drinking Water Supply Report completed in 1999 showed that the wellheads and sanitary seals were in substantial compliance with regulations. The report also showed that the wells were protected from surface flooding.

The Well A log shows that the well was drilled and cased to 100 feet below ground surface (bgs) into a permeable gravel and clay layer. The water table was identified at 40 feet bgs. Knife perforations were installed from 61 feet bgs to 95 feet bgs. A surface seal was installed to a depth of 20 feet bgs into a clay and gravel layer, which could be a low permeability unit. Though the well was in compliance with construction standards when it was drilled in 1985, current construction standards are more stringent. No well log was available for Well B, so a determination of compliance with standards could not be made.

The IDWR Well Construction Standards Rules (1993) require all public water systems (PWSs) follow IDEQ standards as well. IDAPA 58.01.08.550 requires that PWSs follow the Recommended Standards for Water Works (1997) when during construction. Various aspects of the standards can be assessed from well logs. Table 1 of the Recommended Standards for Water Works (1997) states that 12-inch and 20-inch casing requires a thickness of 0.375 inches. Well A meets this requirement. The Standards states that screens will be installed and have openings based on sieve analysis of the formation. Well A used perforations. Standard 3.2.4.1 requires all PWSs to have yield and drawdown tests that last "24 hours or until stabilized drawdown has continued for six hours at 1.5 times" the design pumping rate. Well A had too short a test. No information was available for Well B.

Based on local and nearby well logs and previous studies of the area (Castelin and Winner, 1975; Frenzel, 1989; Brockway and Kahlown, 1994), the Heatherlands Subdivision wells are completed in the fluvioglacial (river and glacier deposited) sediments comprised of fine to coarse-grained gravel that have considerable quantities of water available for use.

Potential Contaminant Source and Land Use

The wells rated low for inorganic chemicals (IOCs) (i.e. nitrate), synthetic organic chemicals (SOCs) (i.e. pesticides), volatile organic chemicals (VOCs) (i.e. petroleum products), and microbial contaminants. The largest number of points in all categories came from the nearby location of the Big Wood River and Highway 75. These sources could potentially contribute IOC, VOC, SOC, and microbial contaminants to the wells.

Final Susceptibility Ranking

Detections above drinking water standard Maximum Contaminant Levels (MCLs), a detection of total coliform bacteria or fecal coliform bacteria, or a potential source of contamination within 50 feet of the wellhead will automatically give a high susceptibility rating to a well despite the land use of the area because a pathway for contamination already exists. None of these factors currently apply to this situation. Hydrologic sensitivity and system construction scores are heavily weighted in the final scores. Having multiple potential contaminant sources in the 0- to 3-year time of travel zone (Zone 1B) contribute greatly to the overall ranking. As a result, in this case, both wells rate moderate for all types of contamination.

Table 2. Summary of Heatherlands Subdivision Susceptibility Evaluation

Well	Susceptibility Scores									
	Hydrologic Sensitivity	Contaminant Inventory				System Construction	**Final Susceptibility Ranking**			
		IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
Well A	H	L	L	L	L	M	M	M	M	M
Well B	H	L	L	L	L	M	M	M	M	M

H = High Susceptibility, M = Moderate Susceptibility, Low Susceptibility
IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Susceptibility Summary

Water chemistry data show that no category of contamination currently threatens the Heatherlands Subdivision drinking water system. The wells show a moderate susceptibility to IOC, VOC, SOC contamination, and microbial contamination. Complying with the recommendations of the 1999 IDEQ Drinking Water Supply Report and installing a disinfection system will help prevent problems that may arise in the future.

The wells in the Heatherlands Subdivision system take water from the alluvial (river deposited) aquifer that comprises the valley floor. The valley floor is ½ mile to 1-½ miles in width. The depth of the valley fill in the area of the Heatherlands Subdivision is approximately 60 to 100 feet below land surface (Castelin and Winner, 1975). The groundwater and surface water systems are hydraulically connected and the hydraulic

potential within the aquifer does not vary greatly. Recharge is primarily from precipitation, tributary valley underflow, and canal and stream seepage losses (Luttrell and Brockway, 1984). Water quality problems in the area have been attributed to sewage treatment facilities, mining, construction, and agriculture (Castelin and Winner, 1975).

Section 4. Options for Source Water Protection

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

An effective source water protection program is tailored to the particular local source water protection area. A community with a fully developed source water protection program will incorporate many strategies. For the Heatherlands Subdivision, source water protection activities should focus on sustaining and implementing practices aimed at wellhead protection. Issues raised in the recent 1999 Drinking Water Supply Report should be addressed. Keeping the wellhead and surface seal up to standards will reduce the susceptibility ratings. Other practices aimed at reducing the movement of contaminants within the designated source water areas should be investigated. Any accidental spills in the Big Wood River or from Highway 75 should be closely monitored. Disinfection practices could be implemented if microbial contamination becomes a concern. Though agricultural activities are currently not a major land use, the highly permeable nature of the soils and the movement rates of the water through the aquifer could make agricultural chemical leaching a concern. Most of the delineated areas are outside the direct jurisdiction of the Heatherlands Subdivision. Partnerships with state and local agricultural agencies, county elected officials, and industry groups should be established and are critical to success. Due to the time involved with the movement of groundwater, wellhead protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term.

Assistance

Public water supplies and others may call the following IDEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the IDEQ office for preliminary review and comments.

Twin Falls Regional IDEQ Office (208) 736-2190

State IDEQ Office (208) 373-0502

Website: http://www2.state.id.us/deq

Water suppliers serving fewer than 10,000 persons may contact John Bokor, Idaho Rural Water Association, at (208) 743-6142 for assistance with wellhead protection strategies.

POTENTIAL CONTAMINANT INVENTORY
LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as Superfund is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (IDEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by IDEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.

References Cited

Anderson, J.E. and K. Bideganeta. 1985. "A Preliminary Geologic Reconnaissance of the Geothermal Occurrences of the Wood River Drainage Area." Water Information Bulletin No. 30. Idaho Department of Water Resources. 49 pages.

Brockway, C.E. and M.A. Kahlown. 1994. "Hydrologic Evaluation of the Big Wood River – Silver Creek Watersheds." Idaho Water Resources Research Institute. 77 pages.

Castelin, P.M. and J.E. Winner. 1975. "Effects of Urbanization on the Water Resources of the Sun Valley-Ketchum Area, Blaine County, Idaho." Water Information Bulletin No. 40. Idaho Department of Water Resources. 86 pages.

Frenzel, S.A. 1989. "Water Resources of the Upper Big Wood River Basin, Idaho." U.S. Geological Survey. Water-Resources Investigations Report 89-4018. 47 pages.

Great Lakes-Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, 1997. "Recommended Standards for Water Works."

Idaho Department of Environmental Quality. 1997. Design Standards for Public Drinking Water Systems. IDAPA 58.01.08.550.01.

Idaho Department of Water Resources, 1993. Administrative Rules of the Idaho Water Resource Board: Well Construction Standards Rules. IDAPA 37.03.09.

Luttrell, S.P. and C.E. Brockway. 1982. "Impacts of Individual On-Site Sewage Disposal Facilities on Mountain Valleys – Phase I. Research Technical Completion Report A-084-IDA. Idaho Water and Energy Resources Research Institute. University of Idaho. 52 pages.

Luttrell, S.P. and C.E. Brockway. 1984. "Impacts of Individual On-Site Sewage Disposal Facilities on Mountain Valleys – Phase II – Water-Quality Considerations. Research Technical Completion Report WRIP/371403. Idaho Water and Energy Resources Research Institute. University of Idaho. 74 pages.

Attachment A

Heatherlands Subdivision Susceptibility Analysis Worksheet

The final scores for the susceptibility analysis were determined using the following formulas:

1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.2)

2) 2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.35)

Final Susceptibility Scoring:

0 - 5 Low Susceptibility

6 - 12 Moderate Susceptibility

≥ 13 High Susceptibility

Ground Water Susceptibility Report Public Water System Name : HEATHERLANDS SUBD Well# : WELL A

Public Water System Number 5070023 09/08/2000 9:11:13 AM

1. System Construction		SCORE
Drill Date	08/12/1985	
Driller Log Available	YES	
Sanitary Survey (if yes, indicate date of last survey)	YES	1999
Well meets IDWR construction standards	NO	1
Wellhead and surface seal maintained	YES	0
Casing and annular seal extend to low permeability unit	NO	2
Highest production 100 feet below static water level	NO	1
Well located outside the 100 year flood plain	YES	0
	Total System Construction Score	4

2. Hydrologic Sensitivity		
Soils are poorly to moderately drained	NO	2
Vadose zone composed of gravel, fractured rock or unknown	NO	0
Depth to first water > 300 feet	NO	1
Aquitard present with > 50 feet cumulative thickness	NO	2
	Total Hydrologic Score	5

3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	DRYLAND AGRICULTURE	1	1	1	1
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		1	1	1	1

Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	2	3	2	2
(Score = # Sources X 2) 8 Points Maximum		4	6	4	4
Sources of Class II or III leacheable contaminants or	NO	0	0	0	
4 Points Maximum		0	0	0	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	Less Than 25% Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score - Zone 1B		4	6	4	4

Potential Contaminant / Land Use - ZONE II					
Contaminant Sources Present	YES	2	2	2	
Sources of Class II or III leacheable contaminants or	NO	0	0	0	
Land Use Zone II	Less than 25% Agricultural Land	0	0	0	
Potential Contaminant Source / Land Use Score - Zone II		2	2	2	0

Potential Contaminant / Land Use - ZONE III					
Contaminant Source Present	YES	1	1	1	
Sources of Class II or III leacheable contaminants or	NO	0	0	0	
Is there irrigated agricultural lands that occupy > 50% of	NO	0	0	0	

Total Potential Contaminant Source / Land Use Score - Zone III	1	1	1	0
Cumulative Potential Contaminant / Land Use Score	8	10	8	5
4. Final Susceptibility Source Score	11	11	11	11
5. Final Well Ranking	Moderate	Moderate	Moderate	Moderate

Ground Water Susceptibility Report Public Water System Name : HEATHERLANDS SUBD Well# : WELL B

Public Water System Number 5070023 09/08/2000 9:11:28 AM

1. System Construction		SCORE
Drill Date	01/01/1985	
Driller Log Available	NO	
Sanitary Survey (if yes, indicate date of last survey)	YES	1999
Well meets IDWR construction standards	NO	1
Wellhead and surface seal maintained	YES	0
Casing and annular seal extend to low permeability unit	NO	2
Highest production 100 feet below static water level	NO	1
Well located outside the 100 year flood plain	YES	0
Total System Construction Score		4

2. Hydrologic Sensitivity		
Soils are poorly to moderately drained	NO	2
Vadose zone composed of gravel, fractured rock or unknown	YES	1
Depth to first water > 300 feet	NO	1
Aquitard present with > 50 feet cumulative thickness	NO	2
Total Hydrologic Score		6

3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	DRYLAND AGRICULTURE	1	1	1	1
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		1	1	1	1
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	2	3	2	2
(Score = # Sources X 2) 8 Points Maximum		4	6	4	4
Sources of Class II or III leacheable contaminants or	NO	0	0	0	
4 Points Maximum		0	0	0	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	Less Than 25% Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score - Zone 1B		4	6	4	4
Potential Contaminant / Land Use - ZONE II					
Contaminant Sources Present	YES	2	2	2	

Sources of Class II or III leacheable contaminants or	NO	0	0	0		
Land Use Zone II	Less than 25% Agricultural Land	0	0	0		
Potential Contaminant Source / Land Use Score - Zone II		2	2	2	0	
Potential Contaminant / Land Use - ZONE III						
Contaminant Source Present	YES	1	1	1		
Sources of Class II or III leacheable contaminants or	NO	0	0	0		
Is there irrigated agricultural lands that occupy > 50% of	NO	0	0	0		
Total Potential Contaminant Source / Land Use Score - Zone III		1	1	1	0	
Cumulative Potential Contaminant / Land Use Score		8	10	8	5	
4. Final Susceptibility Source Score		12	12	12	12	
5. Final Well Ranking		Moderate	Moderate	Moderate	Moderate	